

The **Academic Computing Facility** *Newsletter*

*The Academic Computing Facility, New York University
Courant Institute of Mathematical Sciences
251 Mercer Street, New York, N.Y. 10012*

For a directory of the Academic Computing Facility (ACF), see the last pages of this issue of the Newsletter.

Volume VI, Number 1

February 1986

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<i>New and upgraded applications software include the statistical and mathematical packages AMP, BMDP, EQS, RATS, SAS, TESTFACT and TSP. There were also changes in the spreadsheet program Graphic Outlook, the wordprocessing program WordMARC, the relational database management system INGRES, and several packages for the production of graphical displays. VAX C, VAX FORTRAN, and VAX/UNIX C++ were either updated or newly installed. Also of interest are a new document-printing utility on the IBM and, for CYBER users, a file transfer protocol, an upgrade of software tools and the reinstatement of the tape archiving system, TSS.</i>	
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Special contributions to this issue of the *Newsletter* were made by the following members of the ACF staff and associates (in alphabetical order): J. Bary, H. Bernstein, G. Chapman, E. Friedman, J. Hailu, E. Hochberg, B. Holland, F. Huber, P. Ores, S. Rittersporn, G. Sharrard, and D. Sullivan. This issue was prepared on Apple Macintosh microcomputers and produced on an Apple LaserWriter. Photographs courtesy of Jeff Bary.

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Update on GRAPHICS

at the Academic Computing Facility

There is an old adage that "One picture is worth a thousand words." Researchers at NYU who have been using pictures and diagrams to display and interpret their results would concur. In the past, the Academic Computing Facility has provided several means of producing these images. For many years, output was generated primarily on a pen plotter. In addition, a high resolution monochrome film recorder was available for producing movies and single frames. Over the last five to ten years, graphics software and hardware have become a "mature" area -- that is, one in which dependable products can be found. As a result, the ACF has acquired hardware and software to meet the old requirements, enhance them, and offer new capabilities.

The new products which the ACF has obtained offer many kinds of improvements. However, I think that most users will be interested in two broad categories of improvement. First, the amount of time required to get your graphical output back has been reduced. The ACF has decreased turnaround time primarily by purchasing equipment that is simple to operate and rugged enough to endure hands-on operation by users. Second, color output is more readily available and can be obtained more or less routinely. Several devices have the ability to generate a color image or to produce hardcopy output in color.

This article does not present an exhaustive list of the graphics products offered at the ACF. Most of the items that I will mention have been obtained in the past year or so. One or two products were available to ACF users earlier but have undergone significant enhancements. I think that the best way for you to discover what the new software and hardware can do is to read the descriptions in the following paragraphs. If you are interested in improved turnaround time, read about the Tektronix 4612, the Tektronix 4105A and 4695, the laser printers and the Xerox Star. For information on color, see the paragraphs about the Tektronix 4105A and 4695, the AED Colorware 1024, the Evans & Sutherland PS330 and the Hewlett-Packard 7475A Plotter.

In some of the sections which follow, I will refer you to publications and other sources of more detailed information. If you need additional information on any of the hardware or software described in this article, call the Information-About-The-ACF line at 598-3513. (Please be sure to leave a number where an ACF staff member can reach you during business hours.) If you are completely new to graphics at NYU, you might also wish to obtain a copy of the ACF document, *User's Guide to Application Graphics at NYU*. That document is slated for revision, but the current version, in conjunction with this article, should give you a fairly complete overview. Copies are available from the ACF's Documentation Office, Room 306 Warren Weaver Hall.

Graphics HARDWARE

Monochrome Graphics Displays

There are monochrome graphics terminals at most of the ACF's public terminal sites. (See this newsletter's *Information and Directory* for the locations of ACF sites.) They can be identified by the yellow band around them.

These terminals will emulate a common Tektronix-type graphics display. They will only display characters and diagrams composed of line segments; they will not display a shaded image. They will work with most of the graphics software available at NYU. These monochrome displays provide a good means for previewing your graphics output *before* you obtain hardcopy; they are also useful for examining your results at intermediate stages when you are working on a program which will eventually generate more complicated results.

There are actually several brands of monochrome graphics terminals at the ACF sites, all of them yellow-banded and fitted with "Retrographics" hardware. Should you need one (and most people will not), there is a "Retrographics" user's guide or manual for each brand of terminal being used. Copies of some are in reference racks at the ACF's public sites. If you

cannot find the one that you need, ask an ACF consultant at that site or contact the ACF's Documentation Office, Room 306 Warren Weaver Hall for a reference copy.

Tektronix 4612 Video Hard Copy Unit

This printer is located in Room 313 Warren Weaver Hall. It is connected to one of the monochrome graphics display terminals described just above. It will print a copy of whatever is on the terminal's screen, *exactly* as you see it. This includes all characters and all graphics. It is very easy to operate. It has an on/off switch and a big white button that says "COPY". If you press the COPY button, in 30 seconds you will have a paper-printed copy of your screen. Since the output generated by the 4612 is an exact copy of the screen, it may include unwanted items and is only as good as the screen it is copying. Thus, for example, if there are any commands remaining on the screen from previous operations, they will appear in the hardcopy generated by this printer (sometimes actually a desirable aid in developing a program), and the resolution will be no better than the resolution of which the screen is capable. Higher quality hardcopy output can be generated by the Hewlett-Packard 7475A Plotter or the laser printer, both of which are described later in this article. An instruction sheet is attached to the printer and should be referred to for more detailed information.

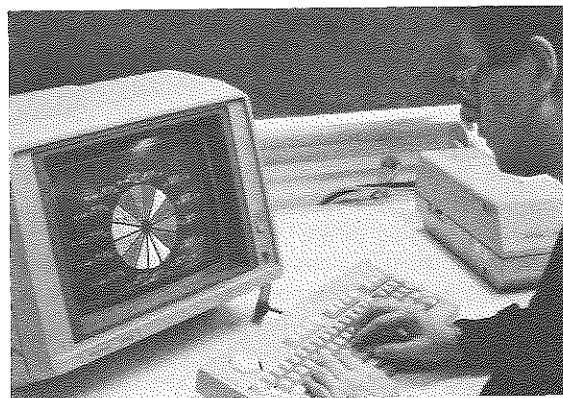
Tektronix 4105A Color Display Terminal and 4695 Color Graphics Copier

These two devices are also located in Room 313 Warren Weaver Hall. They are always connected to each other. The Tektronix 4105A terminal is a color CRT. It has the ability to generate color pictures in a maximum of eight colors. A user can sit at the terminal and change these colors interactively either before or after the image is generated. The 4105 acts as though it were two terminals in one. It has an *ANSI mode* in which it can act like a VT100. In *ANSI* (or *character*) mode, the terminal can be used with a full screen editor. It also has a *graphics mode* which interprets the

standard Tektronix commands. In addition, it has commands for controlling the use of color. Some software programs "know" how to use the 4105A in *color mode*. Among these are *SAS/Graph*, *Graphic Outlook* and *Chemgraf*.

The Tektronix 4695 color printer is controlled for the most part from the keyboard of the 4105A. It is used in a similar fashion to the Tektronix 4612 hard copy unit described in the section preceding this one: all you need to do to start the copy process is to press a single button. Unlike the 4612, however, you can erase the character display -- or as Tektronix calls it, the *dialog portion* of the screen -- so that you can obtain hardcopy on which only the graphics area has been printed. The printer will print a copy of the screen and attempt to match the colors as best as possible. It is limited in its color fidelity, however, as it only has magenta, cyan, yellow and black ink.

The 4695 is fitted with a single roll of white paper. After the printer has produced your picture, you rip the printed copy off the roll. Single sheet paper and transparency film are also available for the 4695. There is a draft edition of a locally prepared User's Guide. For a copy, contact the ACF's Documentation Office (Room 306 Warren Weaver Hall).



The Tektronix 4105A terminal and, to the right, the 4695 color graphics copier. The pie chart in the display was produced with the spreadsheet program, Graphic Outlook.

Advanced Electronics Design Color Graphics Terminals (the AEDs) and Dunn Instruments 632 Color Camera System

We have three different types of AED Color Graphics Terminals at present. For the most part, they are identical. The main difference is the resolution of the display. The AED 512 has 512 pixels horizontal and 483 pixels vertical. The resolution of the AED 767 is 768 pixels horizontal and 575 vertical. Finally, the AED Colorware 1024 is 1024 x 767. All of the terminals have the ability to display up to 256 colors simultaneously out of a palette of 16.8 million. Each pixel on the screen is uniquely addressable.

The native mode commands are broad and powerful. They enable the hardware of the terminal to produce circles, rectangles and filled areas. Software such as MOVIE.BYU can be used to create shaded images which can be viewed on an AED terminal and recorded using the Dunn 632 Color Camera. In addition to operating in its own native AED mode, the AED's can also emulate a Tektronix-type terminal. The User's Manual supplied by AED is available for reference from the Documentation Office, Room 306 Warren Weaver Hall.

The Dunn Instruments 632 Color Camera System can connect to the AED Colorware 1024. It connects like a monitor to the AED. Inside the Dunn is a small, very-high-resolution CRT. The camera is mounted facing the CRT. It can then photograph the small screen. Two types of cameras are available: a 35 mm camera for slides and prints, and a 16 mm Bolex movie camera for making animated sequences. The results depend on the type of film used. So far we have used a slide film and have obtained very good results with the 35 mm camera. The Bolex was used with a color positive film, and I was impressed with the accuracy of the registration. Both the 16 mm camera and the 35 mm camera take about nine seconds to expose a frame. Keep in mind that these are the times just to do the exposure. They do not include the time to display or compute the image.

The Dunn is connected to an output port on the AED and can be controlled from the host via the AED. Currently, there is a version of the NCAR metacode translator on the CYBER and VAX/VMS which will work with the Dunn to produce slides and animations that are either monochrome or in color. *SAS/Graph* and *Graphic Outlook* will produce plots, pie charts, and bar charts that can be displayed on the AED and can be photographed by the Dunn. To do this, however, you must operate the AED in Tektronix mode. As a result, you cannot take full advantage of the color-generating capability of the AED if you use it with *SAS/Graph* and *Graphic Outlook*. That is, pictures generated with *SAS/Graph* and *Graphic Outlook* are not available in full color on the AED, although they can be displayed in full color on other devices.

Evans and Sutherland PS330 Color Vector Display

This is our top-of-the-line graphics system. It has the finest resolution and the greatest built-in capability. It is a step above the AED's, in that it handles data in a three-dimensional system. It is a real graphics workstation. It has a large 19-inch color display, and its popular 68000 microprocessor is used in a variety of contemporary microcomputers and minicomputers. In addition to the normal method of input to the terminal -- by means of the keyboard -- the PS330 has a set of eight control dials and a bitpad and stylus. The dials can be used to change values within an image, dynamically, while it is being displayed. There are many programs which allow control, via the dials, of the angle of view or the scale of a displayed item.

The Evans & Sutherland PS330 is a *dataflow* machine. It also has its own language, and programming the E & S is unlike programming the traditional Von Neumann processor. While it has only one processor, much of the graphics computation is done in specialized hardware. This allows the *real-time* hardware rotation and translation of three-dimensional graphics entities. Programs for the PS330 can be prepared using a *Network Editor* provided by Evans and Sutherland. It is an interactive graphical editor that can be used as an aid

in programming the PS330. The programs can be stored on disk on the ACFcluster of VMS machines. (See the section "Software" for a brief description of NETEDIT.) As an alternative, programs can be prepared using a text editor on another machine and downloaded in a straightforward fashion. At present, we have software for downloading from VAX/VMS and VAX/UNIX machines.

The PS330 was obtained under a University Research Challenge Fund grant to Professors Suse Broyde (Biology, FAS), Stephen Wilson (Chemistry, FAS) and Max Goldstein (Computer Science, FAS, and Director of the Academic Computing Facility). It is available for use in research by faculty of other departments, as well.

Currently, the PS330 is being used by the Biology and Chemistry departments as a tool in molecular structure research. They have been using an interactive program called *ChemMovie*. This is a variant of *ChemGraf* designed specifically for the PS330. (*ChemGraf* and *ChemMovie* are described later in the section on graphics software.) A full manual set for the Evans and Sutherland has been ordered; more information on it is available from the Documentation Office, Room 306 Warren Weaver Hall.

Hewlett-Packard 7475A Six-Pen Plotter

This device is located in Room 313 Warren Weaver Hall. It is a small pen plotter. It can plot one 8 1/2 x 11 sheet of paper at a time. Its carousel can hold up to six pens, and each pen can be of a different nib style and/or color. You select the pens at the time that you generate your plot. The plotter will also take plastic sheets for producing transparencies (to be used in overhead projectors, for example). Users operate this plotter by themselves. Thus, you can obtain high-quality output without having to wait for the operator to run your plot.

Laser Printers

Laser-printed graphics output is a comparatively new development here at NYU. We have been using laser printers for a couple of years as "line printers" and to output "typeset" quality documents. Only recently have we been able to produce plots reliably on laser printers. They will display plots that are destined for the Zeta plotter or for any of the Tektronix devices that we have mentioned. They only produce a black and white image, but the quality is very good, and turnaround can be as short as a few minutes.

Xerox Star Workstation

The Xerox Star Workstation is a product developed several years ago by Xerox Corporation at their Palo Alto research laboratories. Many of their ideas about interactive computing have been incorporated into the Star. Many of the same features are also available on the Apple Macintosh, a machine which is comparatively low in price (see below). The user is presented with a simulated "desktop", consisting of a neutral gray screen. On the desktop there are little pictures called *icons*. Each of these icons represents something that you might find on a real desktop. For example, in the case of the Star, you can see icons of an in-box and an out-box for your electronic mail.

One type of icon represents a document and resembles a piece of paper with the corner turned up. Documents can be created, modified and printed. In addition to containing text, they can contain areas of a pictorial nature. These pictures can be embedded in documents containing text or prepared and stored separately. You compose the picture by selecting elements from a set of points, lines, circles, ellipses, rectangles, curves and text. This set of "atomic objects" is always available to you as you work on a document. You are given a choice of line styles and may fill in solid objects with a choice of textures. The text can be of several different font sizes and styles. A number of special symbols are available.

The Stars were obtained through a gift from Xerox to the Computer Science Department. They are networked to their own laser printers. Output can be printed on paper or can be produced directly on transparency film. For more information, contact Gary Chapman (460-7160).

Apple Macintosh Computers

This past fall, the ACF installed twelve Apple Macintosh microcomputers at its Education Building site (35 West Fourth Street, second floor). The Macintoshes are connected to an Apple laser printer and will produce very high quality output. While at present the ACF does not supply software for graphics on the Macs, users may obtain their own graphics software for use in the ACF's Mac Lab. The most popular of these are *MacPaint*, *MacDraw* and *MacDraft*. There are special guidelines which you must follow, however, in order to use your own software, and to print output successfully on the ACF's *LaserWriter*. Please obtain a copy of the ACF document, *Guidelines for Using Your Own Software at the Academic Computing Facility's Macintosh Lab*, from the operator at the Education Building site. (For more information about the ACF's new Macintosh facility, see the item on Page 11 of this *Newsletter*.)

Graphics SOFTWARE

NCAR SCD Graphics System

The National Center for Atmospheric Research (NCAR) has developed a package of graphics subroutines that will meet many of the plotting needs of users here at NYU. Versions of the NCAR package are available on the CYBER and on several VAX/VMS and VAX/UNIX systems here at NYU.

The NCAR graphics software was designed for use with scientific and engineering data. It is a collection of FORTRAN-callable subroutines that enable you to display data, whether observed ("field") or computed. It handles two- and three-dimensional data.

The package includes a number of special applications. Among them are the contour-plotting routines; many types of contour plots are available. Titles and symbols can be chosen from many character sets, including mathematical and Greek symbols. One feature of the NCAR package which might be appealing is a map of the world that can be merged with your data. Any section of the globe can be selected and displayed in a number of standard projections.

NCAR refers to the high-level routines of its SCD Graphics System as *Graphics Utilities*. They are grouped into "families". Two of the more popular of these are the Contour Plotting Family and AUTOGRAPH (for Automatic Graphing). AUTOGRAPH contains a number of EZ utilities. NCAR's EZ utilities are routines which are particularly simple to use and whose names all begin with "EZ". Most of the more common types of plots can be done with the EZ routines.

More information can be obtained from the online help by typing

`$ HELP GRAPHICS NCAR`

on a VAX/VMS system, or by examining the manual set from NCAR, particularly the section titled *An Introduction to the SCD Graphics System*. Manual sets are available for reference in Rooms 313 Warren Weaver Hall and LC-8 Tisch Hall. There are also copies available for inspection from the consultants in Rooms 307 Warren Weaver Hall and LC-7 Tisch Hall. A copy is on order which will be placed on reserve at Bobst Library. There is also an ACF writeup which you should probably get. The ACF's *User's Guide to Application Graphics at NYU* contains instructions on using NCAR on our systems, and information on ordering your own NCAR manual. The ACF writeup can be obtained from the Documentation Office, Room 306 Warren Weaver Hall.

ChemGraf / ChemMovie

ChemGraf and ChemMovie display pictures of molecules. The arrangement of the atoms is up to the user. They can then be displayed on the Tektronix 4105A or the AED's (if you are using ChemGraf) or on the Evans and Sutherland PS330 (if you are using ChemMovie). You can manipulate the image of the molecule either by typing commands or by using the control dials or bitpad.

SAS/Graph and Graphic Outlook

SAS/Graph and Graphic Outlook are packages which are available on ACF7, a VAX/VMS machine on the ACFcluster. Both packages allow the display of data and results which they have computed. SAS/Graph is a collection of procedures with graphics capabilities; it is used with the statistical procedures in SAS (Statistical Analysis System). Graphic Outlook is a spreadsheet program.

The two packages produce what is frequently called "presentation graphics", including pie charts, bar charts, and plots. SAS/Graph will produce

full-color charts and plots on the Tektronix 4105A and the Hewlett-Packard 7475A. These can be printed on paper or on transparency film for use with an overhead projector. Graphic Outlook will produce low-resolution charts on a regular VT100 and on many other terminals. Graphic Outlook is menu-driven, much like the spreadsheets available for personal computers. Online help can be obtained by typing

```
$ HELP GRLOOK      and  
$ HELP SAS
```

on any machine on the ACFcluster. Manuals for Graphic Outlook and SAS/Graph are located in the manual racks in Rooms 313 Warren Weaver Hall and LC-8 Tisch Hall, and at the ACF's Education Building site.

MOVIE.BYU / DynaMovie

MOVIE.BYU is an interactive FORTRAN program which can be used to construct images of complex three-dimensional items. It produces full-color hidden-surface renderings on the AED terminal described earlier. The user can specify



ACF Systems Group member David Spector poses at an AED 512 terminal. He is looking at an image of the Washington Square Arch which was modeled using Movie.BYU.

colors, as well as the placement and intensity of simulated light sources. Included with MOVIE.BYU is an interactive titling program. You can specify the height and depth of the letters.

DynaMovie is a version of MOVIE.BYU that runs on the Evans & Sutherland PS330. You cannot use DynaMovie yet, but members of the ACF's Systems Group are working to make it available within the coming months.

There is a reference copy of the MOVIE.BYU manual, and additional copies are on order; for information, contact the ACF Documentation Office, Room 306 Warren Weaver Hall.

UNIX

The version of UNIX that we run on our VAX machines here at NYU is 4.2 BSD. It offers a few commands that will produce graphical output. The commands are *graph*, *plot* and *spline*. These are low-level routines that take x,y points and text as input and produce a labeled plot on a graphics terminal. They are well-documented on all 4.2 BSD systems. For more information, see the online *manual pages*, which you can obtain via the *man* command; i.e., type

```
% man graph      and
% man plot        and
% man spline .
```

The PS330's Network Editor

The Evans and Sutherland PS330 comes with a Pascal program called NETEDIT. This is what we referred to earlier as the PS330's *Network Editor*. It is run using the PS330 as a terminal. The creation of a program for the PS330 then proceeds in a manner which more closely resembles flowcharting than conventional programming. The user selects actions from a library of symbols, and connects them using the bitpad and stylus. This method of programming is more intuitive than the familiar type of straight line-coding. The language for the PS330 can be conceptualized as a three-dimensional structure, rather than a "one-step-follows-another" kind of organization. Documentation of NETEDIT can be found in the manual set for the Evans & Sutherland PS330, which is currently on order.

- Jeff Bary, with Estelle Hochberg

Gift from AT&T Will Provide Workstations, Minicomputers for Research in the Physical Sciences

New York University has received from American Telephone and Telegraph a donation of AT&T computing equipment targeted specifically for research in the physical sciences. The gift will include a number of workstations and three minicomputers all running AT&T's System V UNIX.

The AT&T workstations and minicomputers began to arrive in February. More are expected in May. Much of the equipment has been targeted for particular departments in the sciences, and will be situated in those departments. However, other researchers and faculty members in the sciences will be able to access the AT&T equipment via communications links.

Any member of the NYU faculty or research staff who is engaged in research in the physical sciences may apply for access to the new AT&T equipment. If you are interested, and will not have access through your own department, please request an application form from the ACF Accounts Office, 251 Mercer Street, Room 305 (460-7427).

The Academic Computing Facility would like to thank President Brademas for the gracious letter of acknowledgement and appreciation which he sent our director upon learning that we had received the gift of equipment from AT&T. He wrote:

... I know you and your staff worked hard in developing and negotiating the proposal and that installing and implementing the networking system will require additional effort.

The Academic Computing Facility's role in providing computing resources to the University is deeply appreciated. AT&T demonstrated its confidence in the ACF and NYU by making this equipment available for research in our science departments.

Supercomputing Time Is Available Now Through the ACF

The Consortium for Scientific Computing, of which New York University is a founding member, is now making supercomputing time available. Members of the NYU community who are engaged in research or who are teaching a course which could benefit from such access are eligible to apply. Application is made through the Academic Computing Facility. Computing time will be on a Control Data Corporation CYBER 205 supercomputer at the John von Neumann Center (JVNC) in Princeton.

Requests for less than ten hours of time should be made on the standard yellow ACF Computer Time Request Forms (form ACF770). Requests for larger blocks of time require another form, *Supercomputer Time Request*, which is submitted through the ACF but is processed by the JVNC National Allocation Committee. Both forms are available in Room 305 Warren Weaver Hall. If you have technical questions, please see Herbert Bernstein in Room 308 Warren Weaver Hall, or call (212) 460-7269.

- Herbert J. Bernstein

Dial-In's to NYU Computers Can Now Be Made at a Higher Transmission Speed

People who have modems which support connections at higher transmission speeds can now dial in to NYU computer systems at 2400 bps. The number to call if you wish to connect at 2400 baud is 777-8178.

At present, this number will access only some of the connecting modems on the "NYU Computer System Selector" (the MICOM Port Selector, or "switch"); however, we expect to add more high-speed modems in the coming months.

Of course, should the number for 2400-baud connections be busy, you can still make your connection at a lower speed (1200 bps, for example). To do so, dial the MICOM's main number: (777-7600) or one of its alternatives (777-6030, 777-8730). Please remember to adjust your modem, if necessary, for the lower baud rate.

NYU Joins Other Universities and Research Institutes to Found NYSERNet

New York University is one of fifteen educational and research institutions in New York State which are working together to try to establish NYSERNet (for *New York State Education and Research Network*). The high-speed statewide communications network is being planned in order to link New York's major research universities, national supercomputer centers, government research laboratories, and corporate research centers.

Networks have emerged as important elements in research, as evidenced by the success and use of such networks as ARPANET and BITNET. Through its Office of Advanced Scientific Computing, the National Science Foundation (NSF) has undertaken a major initiative to build supercomputer facilities for the academic research community, and to provide network access to those facilities for all NSF-supported researchers. New York institutions are playing a major role in this NSF initiative. For example, the Theory Center at Cornell University is one of the NSF-supported supercomputer centers, and the John Von Neumann Center situated in New Jersey is operated by a consortium of universities which includes New York University, the University of Rochester, and Columbia University. NSF is sponsoring the development of a supercomputer access network, NSFNET, which will connect the National Supercomputer Centers to each other and to state and regional networks, as well. NYSERNet will be a pioneer among these NSFNET elements.

Uses of NYSERNet will range from electronic mail to supercomputer access, from teleconferencing to library research, from remote education to medical research. Undergraduates and graduate students will have access to more facilities through this statewide network. The inclusion of New York corporate research centers in the network will result in improved economic standing for New York State as a whole, by facilitating communication between universities and industry.

In addition to New York University, the organizations involved in planning for NYSERNet are the City University of New York (CUNY), the State University of New York (SUNY) campuses at Albany, Binghamton, Buffalo and Stony Brook; major research universities and institutes, including Clarkson, Columbia, Cornell, Polytechnic University, Rensselaer Polytechnic, Rochester, Rockefeller, Syracuse; and Brookhaven National Laboratory. Procedures are under way to form a not-for-profit corporation to embody this consortium. Corporations and smaller colleges will

NYSERNet continues on Page 14.

The ACF's Experimental Macintosh Lab for Faculty and Students Is Opened

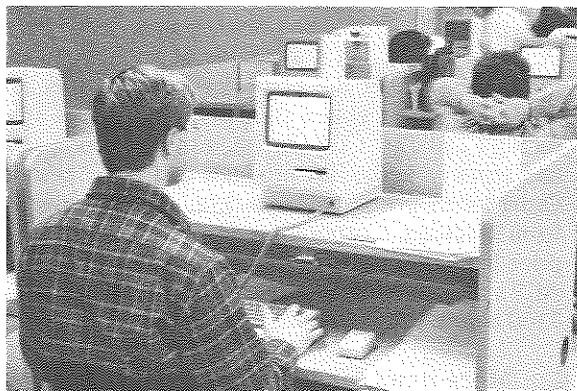
This past November, the ACF opened a small laboratory of Macintosh computers for use by NYU faculty and students. Located in the ACF's Education Building site (35 West Fourth Street, second floor), the Macintosh Lab is an experiment in making microcomputers generally available to the University community.

Macintosh computers are powerful single-user micros. They are easy to use and quite versatile. Currently there are twelve 512K Apple Macintosh computers in the Mac Lab, all connected to a *LaserWriter* (Apple's laser printer). The *LaserWriter* provides high quality, nearly "camera ready" printed output. Users of the Mac Lab are also provided with *MacWrite*, the wordprocessing program which comes with the Macintosh. *MacWrite* offers considerable flexibility in layout, font style, and so on.

Since its opening, the Lab has become very popular. It is now normal for just about every Mac to be in use, and at certain hours there may be a wait for a free Mac.

An important purpose of the new Mac Lab is to enable people from a range of disciplines to become aware of what can be done with microcomputers. It is hoped that, as individuals discover ways in which they can use micros in their academic pursuits, they will be encouraged to purchase their own. (See Page 12 for discounts on Apple, IBM and Zenith computers that are available to members of the NYU community.)

To use the Macintosh Lab, you need a valid New York University ID card. In addition, if you



The Macintosh Lab. The student in the foreground is about to prepare a document using MacWrite.

wish to keep any work that you do on the Macs, you will need to bring your own Macintosh floppy disk. Single disks can be purchased on the NYU Book Center's upper level for about \$3.00. (Be sure to ask for a *single-sided* disk for use with the *Macintosh*.)

New users of the Lab can borrow a "starter kit" from the operator at the Lab site. The starter kit contains the ACF's introductory document, two of Apple's fine manuals (one for the Macintosh and one for *MacWrite*), and a blank practice disk. The ACF document is "mandatory reading" whether or not you have used a Mac before.

The Mac Lab is open weekdays from 9:00 a.m. to 11:30 p.m. and Saturdays from 9:00 a.m. to 5:30 p.m.

IBM PC Maintenance Contracts Are Now Available to Departments through NYU

An agreement has been reached between NYU and Dataflex Corporation to provide service on IBM personal computers, and on a variety of peripheral devices, terminals and printers. At the present time, these service contracts are available only to NYU departments, and not to individual private owners of personal computers.

Departments with IBM PC's, or other computer equipment which they wish to place under maintenance, can choose annual or monthly payment plans. If a machine develops problems, the user can place a service call to Dataflex. A Dataflex service technician will attempt to fix the machine on-site and, if this is not possible, will take the machine to the Dataflex service depot. Loaner machines are available.

The following are examples from the Dataflex price list. Prices are pre-paid and annual. They include on-site labor and replacement of parts. More detailed information can be obtained by contacting Cathy Chapman, NYU Purchasing Department, at 598-2674.

<u>Sample Packages</u>	<u>Price</u>
IBM PC with 256K, 2 floppy disk drives Monochrome or Color monitor w/ adapter AST 6-Pack-Plus or Quadboard with 384K Epson FX185 or Okidata 192 printer	\$ 290
IBM PC/XT with 256K, 1 floppy drive One 10 megabyte hard disk Monochrome or Color monitor w/ adapter Hayes Smartmodem 300 Diablo 630 API printer	617

IBM Maintenance continues on Page 14.

Update for Microcomputer Users at NYU

Editor's Note: More detailed information on the following items can be found in the November issue of the Microcomputer Newsletter, from which they were extracted. That newsletter, a joint effort of the ACF's Faculty Microcomputer Laboratory and its Documentation Office, attempts to provide information which helps microcomputer users select and use personal computers and their software. A limited number of copies are still available and can be obtained at the ACF's Documentation Office (Room 306 Warren Weaver Hall). If you would like to receive future issues of the Microcomputer Newsletter, please complete the form on the back cover of this Newsletter.

Update on the ACF's Faculty Microcomputer Lab. The ACF's Faculty Microcomputer Lab has continued to acquire hardware, software, and publications for examination by members of the NYU community. The following recent additions may be particularly interesting to our readers. Among them are an Apple LaserWriter printer, which produces printed output that is nearly typeset in quality; a Zenith ZW-158 PC with a 10 megabyte Winchester disk; a selection of software for the IBM PC; and miscellaneous software for the Apple Macintosh. The collection of publications has also been expanded. Recently acquired books include *Macintosh Revealed*, *IBM PC Troubleshooting and Repair Guide*, and *Inside Macintosh*.

The ACF's Faculty Microcomputer Laboratory was established at the beginning of the Fall 1984 semester. It is a place where faculty and research staff can explore different kinds of microcomputer software and hardware. Equipment currently available for examination in the Lab includes an IBM PC/AT, Zenith ZW-158, AT&T 6300 and 7300, Kaypro 10, Apple Macintosh, Apple Macintosh XL, Apple IIe, Toshiba 1340 dot-matrix printer, NEC 2510 letter-quality printer, Apple LaserWriter printer. The Apple Macintosh computers are "networked" together into a small AppleTalk network which includes the LaserWriter printer and a 30 megabyte file server.

Popular programs for many types of microcomputers are also available for examination and trial in the Lab. These include text processing programs such as *WordPerfect*, *Nota Bene*, and *XyWrite II* for the IBM PC, *Microsoft Word* for IBM PC and for Apple Macintosh, and *PageMaker* for the Macintosh; communications software such as *Kermit*, *Crosstalk XVI*, and *MacTerminal*; database management software such as *dBASE III* and *DataEase* for the IBM PC, and *Microsoft File* for the Macintosh; programming languages such as *Turbo Pascal*, *Logitech Modula-2*, and *Professional Fortran* for the IBM PC; and *Microsoft Basic*, *Logo*, and *Fortran* for the Apple Macintosh.

The Lab is located in Room 317 Warren Weaver Hall. Visits to the Lab are by appointment: please

call 460-7160 to arrange a time. Hours between noon and 8:00 p.m., Mondays through Fridays, are generally available.

Discounts on Apple Macintoshes, Zenith IBM-PC Compatibles, and IBM PC's. Members of the NYU community can now purchase Apple Macintosh and Zenith computers at a good discount, as a result of agreements with Apple Computer and Zenith Data Systems. In addition, a purchasing agreement with IBM has been just been announced.

Apple's purchase plan for NYU faculty, students, and staff is coordinated through Computer Era, an Apple dealer here in New York City. Computer Era takes orders, acts as the distributor of the computers, and handles service arrangements. To place an order or to obtain further information, contact Computer Era at (212) 686-1705. Computer Era is located at 460 Park Avenue South, at 31st Street.

Under the discount agreement with Zenith Data Systems, NYU faculty, students, and staff may purchase Zenith micros (as well as video monitors and terminals), at from 40% to 50% off list price. Further information and order forms can be obtained afternoons from the ACF's Faculty Microcomputer Laboratory, Room 317 Warren Weaver Hall. Please telephone 460-7160 before stopping by to pick up these materials.

A recently negotiated purchasing agreement between NYU and IBM now makes IBM PC's, PC/XT's and PC/AT's available at about 37% off list price. Under the plan, several packages are offered to matriculated students, faculty and staff through Dataflex Corporation, a dealer which sells and services both IBM products and other brands. Order forms, prices and other details can be obtained from Dataflex Corporation (1-800-526-6974). A price list will also be available afternoons from the ACF's Faculty Microcomputer Lab; please call 460-7160 before coming to the Lab for a copy.

More news for microcomputer users. A version of *Kermit* for the Apple Macintosh is now available. *Kermit* is an error-checking communications program which is used to transfer

Microcomputer Update continues on Page 14.

A Local Association for Computing in the Humanities

If this is the first time you have read our *Newsletter*, you may not know about the Northeast Association for Computing in the Humanities. Meetings occur about once a month and are attended by faculty and other individuals from various institutions, generally in the tri-state area.

Meetings begin with a question-and-answer period in which participants discuss problems which they have been facing in the use of computers in their research and publications, and in instruction.

The second halves of meetings are usually devoted to an invited speaker. For example, at the meeting on Wednesday, March 12, the speaker will be Michael Lesk of Bell Communications Research, who will speak on computerized lexicography and current efforts to make the Oxford English Dictionary available in machine-readable form. On Tuesday, February 11, the speaker was John Hild, a director of XyQuest (producer of the wordprocessing program for microcomputers, *XyWrite*). He spoke on considerations when programming for text processing. The speaker on January 8 was Robert Kraft, Professor of Religious Studies at the University of Pennsylvania. Professor Kraft spoke about the Computer Assisted Tools for the Septuagint Studies Project, of which he is co-director.

The remaining meetings are scheduled for Tuesday, April 8 and Wednesday, May 14. Meetings generally begin at 1:30 p.m. They take place in the IBM Building, 590 Madison Avenue (at 57th Street), New York City, in Room 15-A, on the 15th Floor.

Those interested in finding out more about the organization or in attending a meeting should contact F. Woodbridge Wilson, The Pierpont Morgan Library, 29 East Thirty-sixth Street, New York, NY 10016, or call (212) 685-0008.

ACF staff member Stephen Rittersporn used an Apple Macintosh computer and the program MacPaint to produce this "free-hand" sketch. It was printed on an Apple LaserWriter.

EDUCOM Sets Conference Dates for 1986 and 1987

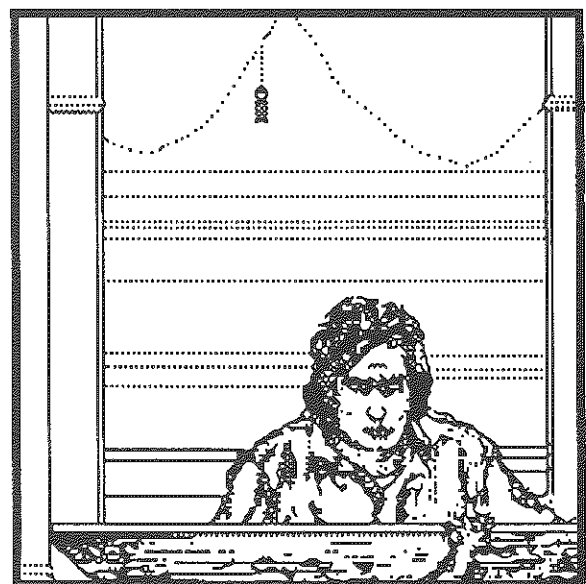
EDUCOM, a non-profit consortium of 500 colleges and universities, has chosen dates for its next two annual conferences.

EDUCOM '86 will be held November 11-14, 1986 at the Pittsburgh Hilton. It will be hosted by Carnegie-Mellon University, the University of Pittsburgh, and the Pittsburgh Council on Higher Education.

EDUCOM '87, hosted by the University of Southern California, will be held October 27-30, 1987 at the Los Angeles Hilton.

EDUCOM was founded in 1964 to facilitate the introduction, use, and management of information technology in educational settings. The EDUCOM conference is a forum for policymakers concerned with computers and communications technology on campus. Educum '85 in Austin drew 700 people. A typical conference audience includes academic presidents and vice presidents, deans, computer center directors, librarians, and faculty, as well as representatives from industry, government, and foundations.

For additional information, contact Carol Parysz at EDUCOM, P.O. Box 364, Princeton, N.J. 08540 (609-734-1888).



Computing Coordinators Welcome Input from Faculty, Research Staff

If you are a very recent addition to the growing number of computer users at NYU, you may not know about NYU's committee of Academic Computing Coordinators (ACC). Headed by Vice-Chancellor Sylvia Baruch, the ACC consists of representatives from each of the schools and divisions of the University.

The committee meets regularly to discuss instructional and research computing interests and needs, and to exchange information. Each Coordinator will both receive input from faculty and research staff in his or her school, and pass information back to them about computing facilities, discounts, opportunities for grants, and so on.

If you have any computing interests that you wish to bring to the attention of your Academic Computing Coordinator, he or she would appreciate hearing from you. A list of the current members of the ACC follows.

<u>School</u>	<u>ACC Member</u>
Chairperson	Sylvia Baruch
ACF	Max Goldstein
BPA	Michael Moses
Dental	Edgar Tonna
FAS	Ann Burton
Faculty Council	Edward Melnick
GBA	Robert Corre
GPA	Will Hansen
Gallatin	Whitney Carman
IFA	Priscilla Soucek
Law	Harvey Dale
Library	Nancy Kranich
Medical	Martin Nachbar
SCE	Stuart Fink
SEHNAP	Lloyd Bishop
SSW	Carol Geisler
TSOA	Martin Elton

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have the ability to connect to NYSERNet at any of the member institutions.

As it now appears, NYSERNet should start to become available by January 1987. For further information on NYSERNet, please contact Herbert J. Bernstein, in Room 308 Warren Weaver Hall, or call (212) 460-7269.

- Herbert J. Bernstein

Microcomputer Update continues from Page 12.

files between micros and other computers. It is the file transfer program which is most widely supported at NYU. The version produced for the Macintosh is called *CKermi*.

A recent addition to Bobst Library's series of *Research Guides* focuses on microcomputers and microcomputer software. "Microcomputers and Software: Selected Reference Sources" (Bobst's *Research Guide/45*) lists books, periodicals, directories, and indexes which can be used to obtain background information on microcomputer hardware and software. A number of the indexes and directories mentioned are available online, either through Bobst's online search services or via dial-in from your own microcomputer.

There are now four new electronic bulletin boards for micro users in addition to the ACF's Microcomputer Bulletin Board. Recently added bulletin board facilities are geared toward present or prospective users of Zenith/Heathkits, Apple Macintoshes, IBM PC's, and *Kermi*, the file transfer program supported by NYU. For more information about our online bulletin boards, see the item on Page 27 of this issue of the *Newsletter*.

IBM Maintenance continues from Page 11.

<u>Sample Individual Items</u>	<u>Price</u>
IBM PC (basic configuration)	\$ 304
IBM PC/XT (basic configuration)	396
IBM PC/AT (Enhanced)	675
IBM Quietwriter Printer	136
IBM Wheelwriter Printer	175
IBM Monochrome Monitor	27
IBM Color Monitor	66
Epson FX80 Printer	153
NEC 3550 Printer	243
Okidata 92 Printer	160
Hayes 1200 baud external modem	80
Apple II+ computer	255
Corvus 20 megabyte hard disk drive	552
Bernoulli Box	<u>541</u>

- Gary Chapman

User Services Update: ACF Talks, Tutorials and Lectures

In addition to consultancy and advisement in the use of ACF computers, the Academic Computing Facility offers a program of talks, tutorials, and lectures. As a rule, there are introductory tutorials and lectures for new users of particular systems and software, in addition to a series of talks on special topics of interest to our users.

Talks, Lectures, and Tutorials In Spring 1986

As in previous semesters, there will be a series of talks on special topics, as well as a program of introductory tutorials and lectures for new users of ACF computer systems.

ACF Talks on Special Topics

A new series of ACF Talks is being planned for the spring semester. Talks scheduled so far include two by Bill Russell on networks and network-related activities: *Intersystem File Transfer* and *Introduction to the Internet Domain System*. Ed Friedman and Jeff Bary will each speak on different aspects of graphics at NYU. Frank LoPresti plans to give a talk dealing with SPSS (Statistical Package for the Social Sciences); it will be titled *An SPSS Practicum: Batch Submission of Jobs*.

David Spector and Gary Chapman are planning three talks on microcomputers. There will be an introduction to the Macintosh, presented by Mr. Spector. At another time, he and Mr. Chapman will speak on the file transfer program *Kermit*; the tentative title of the talk is *Microcommunication: A Kermit Practicum*. The third talk in this "mini-series", *Microcomputers: An Overview and Update*, will be given by Mr. Chapman.

All speakers in the talks planned to date are members of the ACF's Systems and User Services groups. Times and locations are still being arranged as we go to press. However, we expect that most of these talks will take place on Tuesdays in Room 1302 Warren Weaver Hall. As we receive more information, we will post it via the ACF's online news facilities and the bulletin boards at the ACF sites.

Tutorials

The ACF offers "walk-in" tutorials, as well as tutorials by special arrangement.

"Walk-in" tutorials. The ACF's walk-in tutorials are scheduled tutorials for which students or faculty may sign up about one hour in advance.

Sign-up sheets are available at the Operator's desk. In the spring semester they will take place at the following times and locations.

Tutorials for CDC CYBER Users

Three kinds: Tutorials in introductory CYBER use and the full screen editor (FSE) through March 6 and possibly for an additional week, depending on demand. Tutorials in the use of Senator, beginning March 4, and continuing for about three weeks.

At 14 Washington Place, on

Wednesdays and Thursdays 2 and 6 p.m.

Tuesdays 4 p.m.

Saturdays 11 a.m. and 1 p.m.

Tutorials for IBM WYLBUR Users

In Room LC-8 Tisch Hall, at 5:30 and 6:30 p.m. on

Feb. 6, 13, 20, and 27 (all Thursdays)
and Feb. 10, 17, and 24 (Mondays)

Specially Arranged Tutorials. Upon request of faculty, the ACF will also arrange a tutorial specially for a class or group, in any of a variety of topics -- including those presented in the ACF's walk-in tutorials. To arrange tutorials in IBM WYLBUR, call Juan Turrueñas (598-7851); for tutorials on the CYBER or VAX systems, contact Frank LoPresti (598-2993).

Introductory Lectures

Students who are just beginning to use the IBM WYLBUR system at NYU are encouraged to attend introductory lectures. This semester, they are scheduled for February 7, 14, 21, and 28 at 6:00 p.m., in Room 102 Warren Weaver Hall.

ACF Systems Group member Nancy Gausewitz will give an introductory lecture on the VAX/UNIX systems at NYU; her talk will take place from 5:30 to 7:00 p.m. on Wednesday, February 19, in Room 1302 Warren Weaver Hall. Stephen Tihor, also of the ACF's Systems Group, will give an introductory lecture on VAX/VMS systems; his talk will be given at 5:30 p.m. on

User Services Update continues from previous page.

Wednesday, February 26, in Room 1302 Warren Weaver Hall.

For More Information About ACF Talks, Tutorials and Seminars

Announcements of talks, tutorials, and lectures are posted on the bulletin boards at the ACF sites and in the online news and bulletin board facilities on the ACF computer systems.

Announcements of the ACF's series of special talks are also sent via University mail to interested faculty. If you would like to be added to the mailing list, or if you would like further information about the ACF Talks, please contact ACF User Services member Frank LoPresti (598-2993), who coordinates the series.

Looking Back: ACF Talks, Seminars, and Tutorials in Fall 1985

Fall 1985 saw what has become the usual assortment of introductory-level talks and tutorials, as well as a series of talks on special topics.

Special Talks: Micros, Database Management, Networking and File Transfer

The fall semester series of ACF talks touched on a variety of special topics. In one, Gary Chapman compared several popular types of microcomputers and their software. In *INGRES: A Database Practicum*, Jeff Bary demonstrated how to create and use a database with the relational database management system *INGRES*. Bill Russell gave two talks on computer networks and networking procedures at NYU. David Spector spoke on the file transfer program *Kermit*, and its use in transferring information to and from computer systems at NYU. Messrs. Chapman, Bary, Russell and Spector are all members of the ACF's Systems Group.

Presentations on the MicroVAX and XDE

Representatives of Digital Equipment Corporation (*DEC*) presented the *MicroVAX II* and the *VAXStation II* to the NYU community. The *MicroVAX* is a "supermicro" that can support several concurrent users, and can run either a *VMS* or an *ULTRIX* operating system. (*ULTRIX* is *DEC*'s *UNIX* operating system.) The *VAXStation* includes a *MicroVAX* and a high-resolution display. Also this fall, representatives of the *Xerox* Corporation gave a seminar on *XDE* (*Xerox Developmental Environment*). The seminar was sponsored jointly by the Academic Computing Facility and the Computer Science Department.

Introductory Lectures and Tutorials for New Users

As in previous semesters, the ACF offered tutorials for beginners in the use of the *CYBER*, *FSE*, and *Senator*, and in *IBM WYLBUR*. By special arrangement, the ACF User Services staff also gave tutorials designed especially for groups using the statistical packages *SPSS* and *Minitab*; the wordprocessing program *WordMARC*; the spreadsheet program *Graphic Outlook*; and the programming language *APL*.

New users were also offered introductory-level talks on several systems. ACF Systems Group member Stephen Tihor gave talks on the *VMS* systems at NYU. Nancy Gausewitz, also of the Systems Group, introduced new users of *UNIX* to that system, and Juan Turrueillas, of the ACF's User Services, gave a series of introductory lectures on *IBM WYLBUR*.

Update on the ACF's Database Library and Service

Editor's Note: The Academic Computing Facility's database service was started during the 1984/85 academic year. As part of the service, the ACF maintains a library of databases residing primarily on tape. We also provide help to individuals at NYU in locating and accessing databases needed in their research. Initially, the ACF has concentrated on datasets resulting from studies in the Social Sciences, since this appeared to be where the greatest interest lay.

Articles on the ACF's new database service were published in the January and June 1985 issues of this Newsletter. Copies of those articles, along with a list of databases currently available, can be obtained from the ACF's Documentation Office, Room 306 Warren Weaver Hall.

Some Data Sets in SAS Format for VAX/VMS Users

The ACF is making available selected social science data sets, in SAS format, for use on the ACFcluster of VAX/VMS machines. These tapes are entered into the tape library at Warren Weaver Hall as world-readable files.

A list of the files available to VMS users, and instructions on how to obtain them, will be added to the online HELP within the next few weeks. We will announce its availability via the VMS BBOARD facility.

Data Archive Holdings To Be Listed On BOBCAT

A joint project between Bobst Library and the ACF is under way to list the archive of data sets available to the NYU community via the ACF's computer systems. These holdings will be listed in BOBCAT, Bobst's online catalogue. Information cataloguing the data sets will be entered into BOBCAT, according to a recently standardized international format. Once this is accomplished, all the search techniques currently possible through BOBCAT for books will be available for data sets as well. As this is something of a new application for an online library cataloguing system, and as there is a considerable amount to enter and code, it may be some time before this project is completed. However, we hope that the data sets will be substantially catalogued online, through BOBCAT, by the end of the Fall 1986 semester.

New Acquisitions Include Studies of Income Dynamics and Labor Market Experience

Two new holdings of special interest are the *Panel Study of Income Dynamics* and the *National Longitudinal Survey of Labor Market Experience* (young men, young women, mature men, mature women, and youth survey).

These two studies provide some of the richest sources of data on American families and the economic, social and political changes that have occurred over the last fifteen years.

If you are interested in the ACF's new database service, please contact Ed Franceschini (460-7291) to discuss general policy issues or special database requirements. For information on accessing databases which are already available, call ACF consultant George Sharrard (598-7851).

- from a draft supplied by George Sharrard

Users Group For Faculty Working With Social Science Data

A group of NYU faculty and administrators have formed a Social Science Data Users group. The first meeting was held on Friday, February 7. In future meetings, the group will address various issues relating to the use of computerized social science data.

One broad purpose of the group is to characterize the current and future computer data needs of the social science research community at NYU, as a means of providing some input into the planning of computer resources.

All faculty and administrators of research groups at NYU are welcome. If you are interested in being on the mailing list for this group, and/or would like to attend further meetings, please contact Rick Peterson (at 598-2864 or by sending mail to *PETERSON* on the ACFcluster).

Update for UNIX Users

Three More VAXes Are Running UNIX

Since the last *Newsletter*, there are three additional machines that are running a UNIX operating system. This has allowed for a dramatic increase in UNIX system availability. The three machines are all VAX 11/780's that were previously running VMS. They were converted to UNIX and upgraded to VAX 11/785's. (Several of the more powerful VAX 8600's were acquired and were used to replace the 11/780's as VMS machines.) The newest UNIX machines are ACF3, ACF5, and ACF8. ACF3 is used primarily for support of coursework-related computing, and has over 400 student accounts associated with it. ACF5 is targeted for student use also, while ACF4 has become a research-oriented machine, supporting graduate students and professors from various departments.

The third new UNIX machine, ACF8, has become the first machine to be running the 4.3 BSD operating system here at New York University, and one of the few 4.3 BSD systems installed anywhere. A Floating Point Systems 5000 Array Processor has been attached. The array processor can be thought of as a special-purpose computer designed to carry out floating-point computations at high speed. It belongs to Courant Institute of Mathematical Sciences and is currently being used in research, notably in robotics.

UNIX 4.3 BSD

As a rule, the VAX/UNIX systems maintained by the ACF run 4.2 BSD UNIX. "BSD" stands for Berkeley Software Distribution, since the software was developed at the University of California at Berkeley. 4.3 BSD is primarily a performance-enhanced Version 4.2, with improvements coming from experiences in the last two or so years that it has been in the field. Among the new features is support for the XNS protocol, which is hoped to allow the UNIX machines to eventually communicate with the Xerox workstations.

UNIX users should also refer to the items on the new *Imagen/Xerox* printer (Page 28), the experimental version of *NCAR* (Page 23), and the *C++* compiler (Page 24).

- from a draft submitted by David Sullivan

UNIX-to-UNIX Copy (UUCP): What, Why, and How

Ever since the early days of UNIX, a strong desire to be able to move information from one machine to another has resulted in the creation of programs to do just that. One of the earliest programs, and still one of the most widely used, is UUCP. "UUCP" stands for *UNIX-to-UNIX copy*, and provides for the orderly transfer of information from one system to another over dial-up telephone lines.

A large body of UNIX machines, ranging from microcomputers to supercomputers, now pass news, mail and other information over a loosely connected network known as Usenet. Usenet sites cover the globe, making it possible to send information from practically anywhere to anywhere else. There are over 3,000 Usenet sites in existence.

Though mail is the primary constituent of the traffic that flows through Usenet, it didn't take too long to find a mechanism for exchanging news articles, grouped by topics into "newsgroups". Almost all of the UNIX machines here at NYU are members of the Usenet community, and almost all carry news, with access from either the *notes* program or from the *rn* program.

To pass traffic through Usenet, you are required to find a series of machines that speak to each other and which ultimately will form a bucket-brigade to move your mail from your host to the destination host. Since the network is fairly well connected, this "path" of machines seldom gets much larger than five or six hosts long. Traffic moves slowly through the net, owing to this bucket-brigade action, sometimes taking days to reach the destination. Yet, this is often suitable for the particular work being done, and certainly better than nothing.

At NYU, the Usenet hub is the machine *cmcl2*, which talks to all of the interior machines (*i.e.*, those machines inside NYU), as well as a fairly large number of machines outside NYU. News is exchanged with several sites, making *cmcl2* one of the machines that constitutes the "backbone" of the Usenet news system -- a situation that came about mainly through attrition.

A future article will describe some of the ins-and-outs of sending mail through Usenet.

- David Sullivan

Applications Software on the ACF Systems:

Upgrades, Recent Arrivals, and Usage Notes¹

A number of applications packages have been upgraded since the last issue of the Newsletter, while other products have become newly available on the ACF computer systems. In the following update sections, items are grouped roughly as to the programs' functions. Each item is headed by a program's name or acronym, and the computer system(s) on which the program is running appear(s) in boldface within the item.

Statistical and Mathematical Packages

AMP

Version 6.6 of **AMP** is now available on the IBM. It can be executed by including the following command in a batch job:

```
// EXEC AMP .
```

AMP is a program intended to perform symbolic calculations. Its modular structure enables loading of only the necessary modules, thereby avoiding a loss of storage and time for unwanted features. A user can specify new reduction rules and make them permanent by adding new modules to a library.

A short writeup describing how to use **AMP** and a reference manual are available through **PRINTDOC**. (See Page 24 for more information on printing documents via the **PRINTDOC** facility.)

BMDP

The 1983 version of **BMDP** (**Biomedical Computer Programs for the Social Sciences**) is now available on the **CYBER** and **IBM** systems. **BMDP-83** is the latest version of that package of programs for statistical analyses. **CYBER** users should obtain the writeup **BMDP83**. It outlines differences between the **IBM** and **CDC** versions of **BMDP**, as well as several important changes from the 1981 version, including control statement differences. The ACF writeup **QBMDP** has also been updated. Copies of these writeups can be obtained in Rooms 306 and 307 Warren Weaver Hall, or LC-7 Tisch Hall. They may also be retrieved from the **CYBER**: type

```
OBTAIN, WRITEUP=QBMDP      and  
OBTAIN, WRITEUP=BMDP83.
```

EQS

The program **EQS** (pronounced "X") is now available on the ACF's **IBM** system. **EQS** is a structural equations program for causal modeling with normal or nonnormal multivariate data. **EQS** is an advance over **LISREL**-based (**Linear Structural Relationships**) programs in that it can handle not only least squares, generalized least squares, and maximum likelihood methods of parameter estimation, but also estimation methods based on elliptical theory and on distribution-free theory. Thus, in addition to normally distributed variables, it can also handle variables that are nonnormal but which have similar marginal kurtoses, and variables with arbitrary distributions.

The mathematical model upon which **EQS** is based subsumes a variety of covariance structure models, including multiple regression, path analysis, simultaneous equations, first-order and higher-order confirmatory factor analysis, as well as regression and structural relations among latent variables. The statistical theory underlying this program allows for the estimation of parameters and the testing of models using traditional multivariate normal theory, but also enables the use of more general elliptical and arbitrary distribution theories, based on a unified generalized least squares (**GLS**) or minimum chi-square approach.

The program can be executed with the command

```
// EXEC EQS .
```

It is described in a manual which can be examined in Room LC-7 Tisch Hall. Copies of the manual can be purchased for \$10.00 from

BMDP Statistical Software, Inc.
1964 Westwood Boulevard, Suite 202
Los Angeles, CA 90025
Phone (213) 475-5700 .

¹The items on the **IBM** versions of **SAS** and **SAS/ETS**, and on **EQS**, **RATS**, and **TESTFACT**, were submitted by ACF User Services staff member Bert Holland. John Hailu, also of ACF User Services, submitted the drafts of the items on **AMP** and **PRINTDOC**. The items on **XMODEM**, **SES**, and **TSS** were extracted from the online **CYBER News**.

Regression Analysis of Time Series (RATS)

New on the IBM is RATS (Regression Analysis of Time Series) Version 4.1. RATS is a computer software package for the analysis and forecasting of time series. It includes standard techniques such as ordinary least squares, weighted least squares, and least squares with omitted observations, two- and three-stage least squares, seemingly unrelated regressions, spectral analysis, univariate ARIMA (Auto Regressive Integrated Moving Average Models) estimation and single equation non-linear least squares. In addition, the package includes instructions for implementing the methods (developed at the University of Minnesota by Christopher Sims and Robert Litterman) of analyzing multivariate time series using vector autoregressions.

RATS can accept data organized by variables or observations and in a variety of formats. Data transformation is quite flexible and versatile. It allows the generation of data for Monte Carlo tests, the manipulation of scalars and matrices with FORTRAN-like expressions, and some control instructions for conditional, structured-type programming.

RATS solves linear models only, and does not provide for PDL's (polynomial distributed lags) or Cochrane-Orcutt techniques directly. The program is run by the command

```
// EXEC RATS4 .
```

A manual for RATS can be examined in Room LC-7 Tisch Hall. It contains 50 full examples and shows how to perform the Chow test, ridge regression, principal components analysis and several other procedures that are not explicitly invoked in RATS. (Perusal of the manual and examples indicates that RATS provides a fairly powerful and versatile set of commands.)

SAS

(IBM Version)

Version 5 of SAS (Statistical Analysis System) is now available on the IBM computer and has replaced Version 82.4 as the default. It is invoked by the instruction

```
// EXEC SAS .
```

The earlier version can be accessed with

```
// EXEC SAS# .
```

Three new procedures have been added to SAS with the advent of Version 5: *ACECLUS* (Approximate Covariance Estimation for CLUstering), a procedure for preprocessing data for subsequent submission to clustering procedures; and *LIFEREG* and *LIFETEST*, which compute parametric and nonparametric statistics, respectively, on data that may be "right censored". The *ANOVA* (Analysis of Variance) and *GLM* (General Linear Model) procedures now can deal directly with a repeated measures model. Other procedures, too, have undergone changes and enhancements.

The procedure *XCOPY* (available only in the IBM version of SAS) reformats a SAS data set into a form that can be transferred to other computer systems. (With VAX/VMS versions of SAS, this function is carried out by means of a *DATA* step option, *TRANSPORT=* .)

In the *DATA* step, one of the more useful enhancements is the capability in *ARRAY* statements of using explicitly subscripted variables. These changes and others in Version 5 SAS software are described in the SAS Technical Report P-136, which is available for reference in the manual racks in Room LC-8 Tisch Hall and at the ACF's Education Building site (35 West Fourth Street, second floor).

SAS/ETS

(IBM Version)

Version 5 of SAS/ETS (Statistical Analysis Systems/Econometrics and Time Series Analysis) -- available only on the ACF IBM system -- includes two new procedures, *PDLREG* and *SYSLIN*. The *PDLREG* procedure estimates parameters when the model invokes distributed lag effects for independent variables. *PROC PDLREG* estimates a lag function using an Almon distributed lag with or without endpoint restrictions. Also, with the *PDLREG* procedure it is possible to fit an autoregressive error structure. The *SYSLIN* procedure replaces the *SYSREG* procedure. *PROC SYSLIN* estimates parameters in linear systems of several equations. It provides two new estimation methods, *MELO* (minimum expected loss) and *K-class*.

The *MODEL7 SYSNLIN* and *SIMNLIN* procedures have been completely rewritten. A number of features have been added and several outstanding problems corrected. For example, the procedures *SYSNLIN* and *SIMNLIN* can now compile the model program and take all necessary derivatives without using *PROC MODEL*.

In addition, minor modifications have been made in the *AUTOREG*, *ANIMA*, *COMPUTAB*, *FORECAST*, *SIMLIN* and *STATESPACE* procedures.

SAS/GRAPH (IBM Version)

Most of the SAS (Statistical Analysis System) graphics facilities are now available through IBM WYLBUR on the Z19 graphics terminals and on the HP7470 and HP7475 pen plotters. More devices will be added as time goes by. For more information, consult the SAS newsletters *NEWS012* or *NEWS013*, obtainable via the batch job

```
// JOB
// EXEC SAS
HELP NEWS012;
HELP NEWS013;
```

or indirectly via PRINTDOC. (See Page 24 for more on PRINTDOC.)

SAS, SAS/GRAPH, and SAS/ETS

on VMS

According to SAS Institute, sometime in January 1986, there will be a Version 5 of SAS (Statistical Analysis System) and SAS/GRAPH which can work on our VAX/VMS operating system. SAS and SAS/GRAPH Versions 4.10 are currently running on ACF7, a VAX/VMS machine on the ACFcluster. As soon as Version 5 of the SAS package is tested and tried for use with VMS systems, we will announce an upgrade through the online VAX/VMS *BBOARD* facility. (SAS, SAS/GRAPH and SAS/ETS were recently upgraded to Version 5 on the ACF's IBM systems. See the items just preceding this one.)

We are in the process of acquiring a VMS version of SAS/ETS to accompany SAS and SAS/GRAPH. SAS/ETS is a module for econometrics and time series analyses.

TESTFACT

TESTFACT, a test scoring, item statistics, and item factor analysis program, has been installed on the ACF's IBM system. TESTFACT gives conventional item statistics for multiple choice right-wrong test items; these include means, standard deviation, biserial and point biserial item-total correlations, and indices of item facility and difficulty. Also available are distributions of each item response according to fractiles of scale totals, and plots of item difficulty (or facility) against the biserial and point biserial correlations.

Factor analyses of the tetrachoric correlations of the items can be performed using either principal factor analysis with communality iteration, or the full-information factor analysis of Bock and Aitken. Guessing parameters can be applied in the factor analysis, and factor scores can be calculated.

TESTFACT was written by Douglas T. Wilson, Robert Wood and Robert T. Gibbons. The *TESTFACT Test Scoring and Item Factor Analysis User's Guide, Version 2.2* can be examined in Room LC-7 Tisch Hall or can be obtained from Scientific Software, Inc., Mooresville, IN 46158-0536 ((317) 831-6296).

TSP

A revision of TSP (Time Series Processor) Version 4.0 on the IBM has been installed. It merely involves the correction of some bugs, and the change-over should be quite transparent for most users.

Spreadsheet Programs, Database Management Systems, and Wordprocessors

Several Packages Formerly on ACF5 Now Have New "Homes"

The ACF's cluster of VAX machines running the VMS operating system underwent some changes during the fall semester. (See the item on Page 25.) One change involved moving some applications software from ACF5 to other nodes on the cluster. The following will be of particular interest to our readers.

<u>Software</u>	<u>New Home</u>
Graphic Outlook	ACF7
WordMARC (MUSE)	ACF6
INGRES	ACFcluster
SAS and SAS/GRAPH	ACF7

Users were notified as usual via the VMS BBOARD facility well in advance of the move.

Graphic Outlook

Version 3.0 of *Graphic Outlook*, the spreadsheet software with graphics, will soon be available on ACF7. Version 3.0 is an update of the version currently available on that VAX/VMS system. It brings new features, changes to some existing features and corrects some problems.

The new /GRQ command provides a quicker way to obtain "high-resolution" than the /GRH command. See the manual or internal help facility for more information.

The new SLIDEMAKER command /SL permits the preparation of "slides" suitable for presentation and allows up to four graphs on a single drawing. When Version 3 is installed, more information will become available through our online help facility. See the updated manual for more information, or refer to the built-in help within *Graphic Outlook*.

A host language interface is being provided whereby programs can obtain values from stored spreadsheets.

Under Version 3.0, there is a /FIR command by means of which *Graphic Outlook* is able to read worksheet files from *LOTUS 1-2-3* and *Symphony*.

Several other features will become available and will be described when the new version is installed. Type *HELP GRLOOK* for more information on how to gain access to Version 3.

There is a large update to the *Graphic Outlook User's Manual*, reflecting the changes due to Version 3.0. An update packet can be obtained from Stone Mountain Computing, 1096 Cambridge Drive, Santa Barbara, CA 93111 ((805) 964-9101). Packets can also be obtained from the ACF's Documentation Office, Room 306 Warren Weaver Hall. A copy of the *Graphic Outlook* manual is available for reference in the manual rack in Room LC-8 Tisch Hall and at the ACF's Education Building site (35 West Fourth Street, second floor). A copy has also been placed at the Bobst Library Reserve Desk (on the

"A-level" of Bobst); it is listed under "Computer". Copies can also be examined in Room 307 Warren Weaver Hall or in the 14 Washington Place consultants' office.

WordMARC

A new version (4.1.17) of the wordprocessing package WordMARC (previously known as MUSE) has replaced the current version (4.1.13). It is now possible to invoke the program using either the symbol *WM* or the current command *MUSE*. The new version corrects some existing problems. It provides support for -- and spelling checks of -- several foreign languages.

INGRES

The relational database management system from Relational Technology, Inc., is now available on all machines on the ACFcluster of VAX/VMS machines. (It was previously available only on ACF6, one of the machines in the ACFcluster.) For more about INGRES, type *HELP INGRES*.

Graphics Software

NCAR

An experimental version of the graphics package from NCAR (National Center for Atmospheric Research) is available on three VAX/UNIX machines, CMCL2, ACF3 and ACF4. This version, which comes from Minesoft in Golden, Colorado, is still considered highly experimental. Currently, only Tektronix-style graphics can be produced. It can be displayed on the screens of any of our Tektronix-compatible terminals. Hardcopy can be obtained on the Imagen/Xerox laser printer (the Imagen 24/300).

Contact Ed Friedman (460-7293) for more information.

Other Graphics Facilities

This issue of the *Newsletter* features an article devoted to graphics hardware and software at NYU (see Page 3). Those interested in graphics might also wish to refer to the "update" items on the statistical package *SAS/GRAPH* and the spreadsheet program *Graphic Outlook* (Pages 21 and 22).

Programming Languages

C

VAX-11 C has been updated to Version 2.1. The new version fixes a number of bugs, and adds support for *curses* (the screen-independent graphics package for UNIX) and for G-format floating point. VAX-11 C is DEC's C-language compiler. It is available on the ACFcluster of VMS machines. To invoke VAX-11 C, you type the command *CC*.

For online documentation, type *HELP CC* (for information supplied by DEC) and *HELP VAX_C* (for additional, locally-supplied information on using the C compiler at NYU). Copies of DEC's *Programming in VAX-11 C* (Pub. No. AA-L370A-TE) are available for reference in Rooms 313 Warren Weaver Hall and LC-8 Tisch Hall.

FORTTRAN

VAX-11 FORTRAN upgrade to Version 4.3. Since the last issue of the *Newsletter*, DEC's FORTRAN compiler was upgraded on all VMS systems, first to Version 4.2 and then to Version 4.3. Version 4.3 fixed a

number of bugs associated with Versions 4.0 through 4.2. Most notably, Versions 4.0 and 4.2 contained a new optimizer which generated somewhat incorrect code in certain boundary cases. The problem was fixed in Version 4.3, and it is no longer necessary to add the */NOOPTIMIZE* parameter to the *\$FORTRAN* command.

C++

The C++ language translator from AT&T is being acquired for use on VAX/UNIX machines. C++ is an enhanced superset of the C programming language. It offers data abstraction and enhanced type-checking, among other features.

Tools, Utilities, and Transfer Protocols

PRINTDOC

The PRINTDOC facility provides a convenient means by which IBM users can print online documents on different kinds of paper forms. Upper-case-only translation is performed automatically, when the user selects a paper forms code which requires it. PRINTDOC's upper-case output is sometimes more readable than output produced with the IBM *WYLBUR LIST OFFLINE UPPER* command. (One example is with the printing of boxes.)

A complete catalogue of documents available through PRINTDOC, and instructions on its use, can be obtained in batch by RUNning the job

```
// JOB
// EXEC PRINTDOC .
```

XMODEM (File Transfer Protocol)

XMODEM, a program for transferring files between the CYBER and a variety of microcomputers, was installed on the CYBER early last fall.

The program is an implementation of the Ward Christensen protocol *MODEM*. It handles the CYBER end of a file transfer. In order to use it with your microcomputer, you must have obtained a communications software package which allows you to log in via your microcomputer to the CYBER, and which offers a version of XMODEM handling the microcomputer end of the file transfer, which many communications packages do.

To start the CYBER version of XMODEM, you enter the command *MODEM* and press the RETURN key. You will be prompted for the information needed to conduct the file transfer. Explanations of the prompts can be obtained by typing a ? in response to the prompt if your terminal is in line mode. If it is in screen mode, bring your cursor to the prompt line which confuses you, and press the HELP key. The display on your screen will indicate which key you should press to obtain help. (Note: if your terminal is in line mode, and you wish to exit without completing a file transfer, enter a *CTRL-T*: hold down the CONTROL key while typing the letter *T*. If your terminal is in screen mode, the screen display will indicate the QUIT key.)

While file transfer between micros and the CYBER is also possible via *Kermit*, the protocol supported at NYU, this new CDC support of XMODEM enables transfers to and from a substantially greater variety of microcomputers.

SES

An update to the NOS Software Engineering System (SES) Tools brought three changes of interest to users of the ACF's CYBER system. Tools that used *Sort/Merge 4* now use *Sort5*. There is a new facility, *XREFMAP*, which can be used to generate a cross-reference of module names, entry points, and external references from a load map. Finally, a new tool, *SCOOP*, compares two files and lists the changes that transform one to the other.

For more about the SES tools, enter the command *SES.EXPLAIN TOOLS* .

Tape Archiving System

TSS, a subsystem for the automatic archiving of CYBER users' direct access files, is working once again. *Direct access files* are those permanent files which you access by means of an *ATTACH* command. To retrieve a direct access file which TSS has archived to tape, you simply enter the customary *ATTACH* command. There may be a noticeable delay while the tape on which it has been stored by TSS is queued up or mounted. If so, you may wish to enter a *CTRL-T* -- that is, to type a *T* while holding down the *CONTROL* key: this will allow you to attend to other work at your terminal, while you are waiting for your file to be "staged in".

TSS reviews the activity of all direct access files several times a day. Based on these reviews, the system gives disk space to the most active direct access permanent files, and stores the less active ones on tape.

To determine whether a direct access file resides on disk or has been moved to tape by TSS, type *CATLIST, LO=F, TY=D* and examine the entries in the column labeled *RS*: *D* indicates that a file resides on a disk, *A* that it has been archived to tape, and *B* that, at that particular time, it is on both disk and tape.

As we go to press. . .

Upgrade of WYLBUR System Is Planned For March

Release 7.0 is due to become the default version of WYLBUR in early March. The upgrade consists primarily of enhancements to the current version (6.0) and, as a result, should be completely "transparent" to nearly all WYLBUR users.

If you would like more information on this new release, please see the *WYLBUR 7.0 Release Guide*; a copy will be available for reference in Room LC-7 Tisch Hall and Room 306 Warren Weaver Hall. Beginning about the third week in March, you will be able to purchase the *WYLBUR Reference Manual, Release 7.0* in Room 513 Warren Weaver Hall. We do not have an exact price as yet, but believe that it will be between \$5 and \$7. Users who already have an older version of the Reference Manual can probably do without replacing it.

Update: For Users of VAX/VMS at NYU

New VMS Machines. The ACF now has three VMS machines, all configured in a cluster. ACF1 and ACF7 are both VAX 8600's -- the new higher-capacity VAX processor. ACF6 is a VAX 11/785. Two VAX 11/780's -- ACF3 and ACF5 -- were converted from VMS operating systems to UNIX early in the fall semester. The overall result was an increase in both VMS and UNIX system availability for users of the ACF's computer systems this fall.

The VMS Cluster. ACFcluster came into being over the summer and into early fall. During the fall semester, machines were gradually added or removed from the cluster, resulting in the current configuration of two VAX 8600's and one VAX 11/785.

VMS Clusters are groups of VAX processors or "nodes", all running cooperating versions of the VMS operating system and sharing a common file base. The installation of NYU's first cluster of VMS machines meant an effective increase in resources over what would have resulted from the mere addition of new machines. This is because the cluster enables a more efficient sharing of file space, software, drives, and so on. (Because of licensing restrictions, however, some application programs can only be made available on one machine. See Page 22 for a list of these.)

Clusters have only recently become practicable. For a machine to be added to the cluster, moreover, it must be running VMS Version 4.0 or higher. All machines on the ACFcluster are presently running Version 4.2. For more about the cluster, and your use of cluster machines, see the ACF document *Introduction to the VAX/VMS Systems at NYU*. Copies are available from the ACF's Documentation Office, Room 306 Warren Weaver Hall.

Upgrade to Version 4. With the upgrade of CMCL1 to Version 4.2 of VMS, nearly all VMS machines are now at Version 4. VMS 4 brought a number of changes and enhancements. Many of these were described prior to the upgrade in the January and June 1985 editions of the *Newsletter*. For changes to the DEC MAILer and DEC's documentation set, and for instructions on the new capability for command-line editing, see the ACF document cited in the paragraph preceding this one. In addition, abstracts of DEC's Release Notes are available online. To view them, type *HELP VMS_NOTES*.

Microcomputer and Terminal for The Visually Impaired Are Installed At the ACF's Tisch Hall Site

A combination microcomputer-and-terminal for the visually impaired has just been installed at the ACF's Tisch Hall site. The new equipment consists of a Zenith microcomputer, a large CRT display screen, and a Visual Enlargement Terminal -- a special unit which allows a user to manipulate and magnify objects appearing on the screen. There is also a separate device for magnifying printed matter. All are located in Room LC-14.

The Zenith microcomputer is IBM PC-compatible and can be used either as a "standalone" microcomputer or as a terminal. When used as a terminal, it can access any of the systems connected to the NYU Computer System Selector (or "switch"). A Braille terminal and printer, previously located in Room LC-8 of Tisch Hall, have been moved and now also reside in Room LC-14.

Like the Braille terminal and printer, the new equipment was funded by a National Science Foundation grant that was matched by the University. The equipment was obtained so as to give visually impaired students access to computers and computing services at the University.

Individuals who need information or help getting started with the computing equipment for the visually impaired can call Professor Doris Aaronson, of the FAS Psychology Department (598-2243), or Judith Goldberg, of the Center for Student Disabilities (Loeb Student Center, Room 701, 598-2941). Also of interest is the New York Blind Computer Users Group -- a computer club that meets every third Saturday at 2:00 p.m. in Room 565 of the Psychology Building (6 Washington Place). For information on the club call Paul Gabias (598-7668).

CDC Publishes a *PLATO* Newsletter

A newsletter devoted to *PLATO* is now being published by Control Data Corporation. *PLATO* is considered by some to be the premier system today for *CAI* (computer assisted instruction). A large assortment of prewritten *PLATO* "courseware" is available, and the system allows individuals to write their own instructional material, as well.

The PLATO Newsletter contains news and information on matters of interest pertaining to *PLATO*. Among these are capabilities, new features, courseware developments, new brochures, manuals, and user group meetings. The first issue appeared in October 1985, and the plan is to publish quarterly. If you wish to have your name added to the mailing list, please write to *The PLATO Newsletter*, Control Data Corporation, HQW10S, P.O. Box 0, Minneapolis, MN 55440.

The ACF has had several *PLATO* workstations on campus on an experimental basis for over a year. While *PLATO* may be best known as a *CAI* system that operates on "mainframe" computers, the *PLATO* which the ACF has acquired runs on Control Data microcomputers. The Academic Computing Facility's three *PLATO* workstations are located in its Education Building site. The four courses involved in the current *PLATO* experiment -- Pascal, Calculus 1, Physics 1, and Chemistry 1 -- are only a small sample of what can be acquired.

Special Interest "Bulletin Boards" for Computer Users at NYU

Electronic bulletin boards are an increasingly common means by which individuals with similar interests exchange information. Typically, users of a bulletin board can read notices that have been posted on it, and send notices for other users to read. To use a bulletin board, you need to have access to the computer on which the bulletin board program is running. At NYU, the ACF maintains a number of bulletin boards, some of them for individuals with special interests in computing and other fields.

Bulletin Boards for Microcomputer Users Available through *INFO*

The ACF now maintains several electronic bulletin boards for microcomputer users. One of these, the ACF's Microcomputer Bulletin Board, was established late last spring, and is devoted to information of particular interest to the community of microcomputer users at NYU. The recently added bulletin board facilities consist of extracts from several nationally read bulletin boards; they are particularly geared toward users of Zenith/Heathkits, Apple Macintoshes, and IBM PC's. Another new bulletin board focuses on information about *Kermit*, a program which is used to transfer files between popular brands of microcomputers and many of the computers at NYU. Two bulletin boards which may be added in the near future will concentrate on the programming languages *Pascal* and *Modula-2*, mostly from the standpoint of their use on microcomputers.

The bulletin boards were all implemented as part of *INFO*, an experimental system which, at present, also offers information on logging in to the NYU computer systems. *INFO* and the bulletin boards can be reached via dial-in by anyone who has a modem, a microcomputer, and communications software. Here's how:

- 1) Connect to the NYU Computer System Selector (or "switch") by dialing 777-7600.
- 2) In response to the SELECTION? prompt, type *INFO* and press the RETURN key. (If the word "GO." appears, press the RETURN key again.)
- 3) This will connect you to *INFO* and its main "menu". To access the bulletin boards, select *MICRO*, press RETURN, and a second menu will appear. This menu will offer you a selection of bulletin board facilities. *MICROINFO* is the ACF's bulletin board for microcomputer users at NYU. Also in the menu is *POST*, the facility which you can use to submit a message for inclusion in *MICROINFO*.

Special Interest Bulletin Boards on the VAX/VMS Systems

Each of the VAX/VMS systems at NYU has a bulletin board facility, called *BBOARD*, which is intended for all users. *BBOARD* is the means by which news and important announcements are broadcast to users of these systems. Announcements of software upgrades, holiday hours, new facilities and so on are posted regularly on *BBOARD*. To use *BBOARD*, you simply log on to your VMS account and type the command *BBOARD*. At any time, typing *HELP* in response to the *BBOARD>* prompt will bring you more detailed information on how to use the facility.

Aside from this general-interest bulletin board facility, there are several bulletin boards for users with specialized interests in computing. A number of these are available on the ACF's new cluster of VAX/VMS machines. If you have an account on the *ACFcluster*, you can examine one of these special interest bulletin boards by logging on to the *ACFcluster* and typing the command *BBOARD bboardname*, where *bboardname* is the name of the bulletin board of interest. For example, each of the bulletin boards available through *INFO* can also be reached from any machine on the *ACFcluster*. To reach the bulletin board devoted to information on *Kermit*, you would type the command *BBOARD KERMIT*.

Here are the names of some of the bulletin boards which are available on the *ACFcluster* -- or which may be, soon. Starred items (*) are also available through the *INFO* system.

<u>bboardname</u>	<u>Subject Matter or Area of Interest</u>
<i>AILIST</i>	Artificial Intelligence
<i>ARPABB</i>	ARPAnet wide bulletin board

Special Interest Bulletin Boards continues on the following page.

*Special Interest Bulletin Boards continues from the
previous page.*

<u>bboardname</u>	<u>Subject Matter or Area of Interest</u>
BIOCHEM	Hardware, software, and databases for use in Biology and Chemistry
COMMENT	Replies to questions and comments sent to the ACF "user" COMMENT are posted here, if they are of general interest.
INFOHZ100*	For Zenith/Heathkit usage
INFOPC*	For IBM PC users
INFOADA	The ADA Language compiler
INFOMAC*	For Macintosh users
INFOMOD2*	Modula-2 (emphasis on microcomputer use)
INFONETS	Networks
INFOPAS*	Pascal Language Compiler (emphasis on microcomputer use)
KERMIT*	File transfer protocol, <i>Kermit</i>
MICROINFO*	For microcomputer users at NYU
POLISCI	Political Science
SOFTENG	For software engineers
SPACE	Space exploration
SUPERCOMP	Supercomputers
TELECOM	Telecommunications

An Imagen/XEROX Laser Printer Replaces the Canon

The Imagen/Canon laser printer was replaced recently by an Imagen/Xerox. Like the Canon, the Xerox laser printer provides low-speed high-quality non-impact output. It has a finer resolution, however, and should be more reliable, as a result of improved technology. The Imagen/Delphax printer will continue to provide high-speed, high-volume laser output. Both printers are located in Room 312 Warren Weaver Hall (the I/O Room) and are accessible from the VAX/VMS and VAX/UNIX systems at NYU.

To use the Imagen/Xerox from a UNIX system, use *xpl* as an option in your print/formatting command, e.g.,

```
itroff filename -Pxpl .
```

From a VMS system, use the command

```
IPRINT/DEV=ILPA filename.typ .
```

Your output will be filed in your output folder (or "bin").

A substantial part of the software associated with the Imagen/Xerox is new. There have been several months of testing and adjustment; however, should you encounter any difficulties, please let us know by sending electronic mail to the "user" COMMENT.

Also Of Interest. . .

Update on the LAN. In the June 1985 issue of the *Newsletter* we described a Local Area Network (or LAN) which was being planned for the NYU campus.

Plans, as well as the design for the basic wiring, are now complete. It was decided that the project would move ahead in two phases of installation: in the first phase, cable would be laid in those buildings which can be reached through already existing pathways. The installation of cable should begin in early spring.

The LAN will be a campus-wide data communications network using a broadband cable design. It is intended to meet a greatly increased demand for data communications both from computer to computer, and from terminal to computer. Among the benefits resulting from the LAN will be new electronic aids in the sharing of information, and in research and the preparation of publications.

BITnet. The ACF is working on making BITnet accessible from all machines on its cluster of VAX/VMS computers. It is now possible to send and receive BITnet mail from one of the cluster machines, ACF6, using DEC's electronic MAIL program. Further, BITnet mail can be *received* on any machine on the cluster. The ACF staff expects to be able to support the sending of BITnet mail from all machines on the ACFcluster by Summer 1986.

BITnet is an international network of almost one thousand computers located at universities and research centers. VAX/VMS users can obtain further information on BITnet by typing the command *HELP BITNET*.

Academic Computing Facility: Information and Directory

Administration Director: Professor Max Goldstein
 Assistant Directors: Ed Franceschini, Terry Moore
 Accounts Manager: Anna Moore

Mailing Address Academic Computing Facility, Courant Institute of Mathematical Sciences
 New York University, 251 Mercer Street, New York, N.Y. 10012

Key: *WWH* - Warren Weaver Hall, *14 WPL* - 14 Washington Place, *TH* - Tisch Hall,
 ED - Education Building, *BOB* - Bobst Library.

IN BRIEF: SELECTED FACILITIES AND TELEPHONE NUMBERS

(For details on these and other facilities, see our Directory on the following page.)

Account Information: 460-7427 (305 WWH)

Consultants:	<i>For students</i>	CYBER	598-2993 (14 WPL)
		CYBER, IBM	598-7851 (LC-7 TH)
	<i>For faculty and staff only</i>	CYBER, VAX/VMS, or VAX/UNIX	598-3970 (307 WWH) 460-7398 (307 WWH)
		CYBER, IBM	598-7851 (LC-7 TH)

Dial-in:	From	Dial	For (bps)
	NYU's 598 exchange	Extension 7001	110 - 300
	(from NYU only)	" 4141	110 - 1200
	" 460 exchange	" 7381	110 - 1200
	" 285 exchange	" 8860	110 - 1200
	Off Campus	777-7600*	110 - 1200
		777-8178	110 - 2400

**Note: Dial-in access to the NYU Computer System Selector (the MICOM Port Selector, or "switch") is normally through 777-7600. If you dial that number and get no answer, please try 777-6030 or 777-8730, instead.*

Equipment Problems: 460-7414 (WWH only. See Directory for other sites.)

Information about the ACF (general, introductory): 598-3513

Computer Operators: WWH 460-7170 TH 460-7174 (LC-14), 460-7175 (LC-8)
 14 WPL 460-7176 ED 460-7181

Systems' Status Reports: CYBER, VAX/VMS, VAX/UNIX 460-7285 (recorded message)

Tape Librarian: CYBER, VAX/VMS, VAX/UNIX 460-7155
 IBM 598-7901

Tutorials (arranged on request): IBM WYLBUR 598-7851
 CYBER, VAX/VMS, or VAX/UNIX 598-2993

User Work Areas: 14 WPL; ED, 2nd Floor; BOB, B-level; TH, Room LC-8;
 WWH, 3rd Floor (faculty only).
 Mon - Fri 8:30 a.m. to midnight (shut-down begins at 11:30)
 Sat 8:30 a.m. to 6 p.m. (shut-down begins at 5:30)
 (BOB follows the library's hours.)

DIRECTORY

Key, and Street Addresses

14 WPL: 14 Washington Pl.
ED: Education Building, 35 W. Fourth St.
WWH: Warren Weaver Hall, 251 Mercer St.

BOB: Bobst Library, 70 Washington Sq. So.
TH: Tisch Hall, 40 W. Fourth St.

Accounts 305 WWH, Mon - Fri, 9 a.m. to 5 p.m., 460-7427

Administration and Administrative Information 305 WWH, Mon - Fri, 9 a.m. to 5 p.m., 460-7427

Consultants: See *User Services*

Data Base Service: Helps members of the NYU academic community to locate and use large data bases for research. A library of data bases available on tape includes a variety of surveys in economics and the social sciences.

Dial-Up Numbers

From	Speed (bps)	Use
Off campus	110 - 1200	777-7600*
	110 - 2400	777-8178
598 Centrex	110 - 300	7001
	110 - 1200	4141 (from NYU ONLY)
460 "	110 - 1200	7381
285 "	110 - 1200	8860

** Note: Dial-in access to the NYU Computer System Selector (the MICOM Port Selector, or "switch") is normally through 777-7600. If you dial that number and get no answer, please try 777-6030 or 777-8730, instead.*

Documentation

ACF/NYU Newsletter is mailed to holders of Individual Accounts on the *CYBER*, *IBM*, or *VAX* computers. Inquiries: Estelle Hochberg, 306 WWH.

ACF Introduction and Directory, for holders of Individual Accounts: single copies are available in Rooms LC-7 TH and 305, 306, and 307 WWH.

Book Center (NYU), 18 Washington Place, stocks commercially published software manuals, tradebooks on computing, and selected manuals for the CYBER, VAX/VMS, and IBM systems. Inquire at information desk, lower level. Computer tapes are sold at the stationery counter. Single-sided disks for use with Apple Macintosh computers are available on the upper level.

ACF Writeups, CYBER: Use "obtain(writeup=qindex)" for information.

IBM: Batch, use `/// exec printdoc,acfname=acfindex`, after your jobcard. WYLBUR, type `"u wyl.pb.pub.acdocs#acfindex"`, then `"list"`. A complete catalog of available online IBM documentation can be obtained with `/// exec printdoc`.

Limited supplies of ACF guides and manuals are also distributed from the operators' desks at 14 WPL, TH Room LC-8, and ED (second floor) Mon - Fri, 8:30 a.m. to midnight (shut-down begins at 11:30), Sat 8:30 a.m. to 6 p.m. (shut-down begins at 5:30).

Multiple Copies of ACF Writeups for Classroom Use: Estelle Hochberg, 306 WWH for CYBER, VAX/VMS, VAX/UNIX; consultants, LC-7 TH, for IBM. (Please allow about a week. Blank forms for writeup requests can be obtained in 306 WWH or LC-7 TH.)

On-Line Help Utilities (CYBER, VAX/VMS, IBM WYLBUR): Type "help", strike return key.

On-Line News Bulletins are important sources of information on systems and operations, training sessions, new documentation, user and programming hints, and so on.

CYBER News:

Use "obtain(writeup=news)" for time-sharing or batch. Replaced weekly.

IBM News:

Updated as needed. Batch, use "// exec ibmnews". WYLBUR, type "help ibmnews".

VAX/VMS BBOARD:

Type "bboard"; strike return key to list each message; type "help" for further instructions; type "exit" to quit.

UNIX Notes:

Type "notes general nyu.general" for news. Type "man notes" for more information.

Reference Copies of Manuals: 14 WPL, TH Room LC-8, WWH Room 313; selected CYBER, VAX/VMS, and VAX/UNIX manuals are also available at the Bobst Library Reserve Desk (instructor is listed as "Computer"), the CIMS Library, and the Computer Science Department's Help Room (1128 WWH). For CYBER, type "obtain(writeup=reflist)"; for VAX/VMS, use "print nyu\$aids:vaxman.doc".

Equipment Problems	at 14 WPL	Site Supervisor
	at ED	" "
	at TH	" " , Room LC-8
	at WWH	Operations Personnel, Room 312, or 460-7414
	ACF Terminals at Other Locations: 460-7414	

Information about the ACF 598-3513

Intended for new or prospective users. Call for general introductory information about the Academic Computing Facility. Call also if you think you need help in selecting an ACF system or software, or if you are not sure which ACF staff member to contact for help or information.

Microcomputers

Faculty Laboratory:

The *ACF Microcomputer Laboratory*, a support center for faculty who wish to examine microcomputers and microcomputer software packages, and explore their uses in instruction and research. Mon to Fri, noon to 8 p.m., WWH Room 317. Please call 460-7160 for an appointment.

File Transfer: Up-loading and down-loading to and from NYU computer systems, via KERMIT. For information, call 460-7181.

Macintosh Facility: An experimental facility of Apple Macintosh computers for use by faculty and students. The Lab is located in the ACF's Education Building site (35 West Fourth Street, second floor). It is open weekdays from 8:30 a.m. to midnight (shut-down begins at 11:30) and Saturdays from 8:30 a.m. to 6 p.m. (shut-down begins at 5:30).

Microcomputer BBoard: An electronic bulletin board facility dedicated to the sharing of information among microcomputer users at NYU. To use, access the MICOM Port Selector and type "info".

Microcomputer Newsletter: Focuses on information and hints of particular interest to current and prospective microcomputer users in the NYU community.

Supplies: The NYU Book Center (18 Washington Place) stocks a wide assortment of manuals and trade books dealing with computers and computer applications. Computer supplies (blank tapes, diskettes, paper) and popular microcomputer software are also sold. Inquire at the stationery counter for computer supplies, at the textbook information counter (lower level) for all else.

NYU faculty and staff may order diskettes, paper and other computer supplies through their departments from Central Supply.

Systems' Status 460-7285 (recorded message)

Tape Use	Tape Librarian:	Tape Purchase:
	CYBER, VAX 460-7155	NYU Book Center
	IBM 598-7901	stationery counter

Tape Questions and Requests:
CYBER, VAX 460-7155 IBM 598-7851

Terminals (Problems with), ACF equipment only: See *Equipment Problems*

Tutorials are scheduled during the first 3-4 weeks of each semester. Also offered by special arrangement, upon request of faculty. Call 598-7851 for IBM WYLBUR, 598-2993 for CYBER, VAX/VMS, VAX/UNIX.

User Services

Student Advisement

CYBER:	14 WPL	598-2993	CYBER, IBM:	TH Room LC-7	598-7851
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Consultants

CYBER:	TH Room LC-7	598-7851	IBM:	TH Room LC-7	598-7851
	WWH Room 307	598-3970			
		460-7398			

Hours for Consultants and Student Advisers are posted at 14 WPL, WWH outside Room 305, and TH Room LC-7. See the CYBER writeup "CONSULT" for advisers' hours.

User Work Areas Mon - Fri 8:30 a.m.† to midnight (shut-down begins at 11:30 p.m.)
Sat 8:30 a.m.† to 6 p.m. (shut-down begins at 5:30) *
(Note: WWH facilities are for faculty and researchers only.)

CYBER Interactive terminals, self-service printers
 TH Room LC-8, ED second floor, WWH Room 313, 14 WPL; Bobst B-level *
Card readers TH Room LC-14, WWH Room 311
Keypunches TH Room LC-14
Output folders (high speed printers)
 TH Room LC-14, WWH Room 312

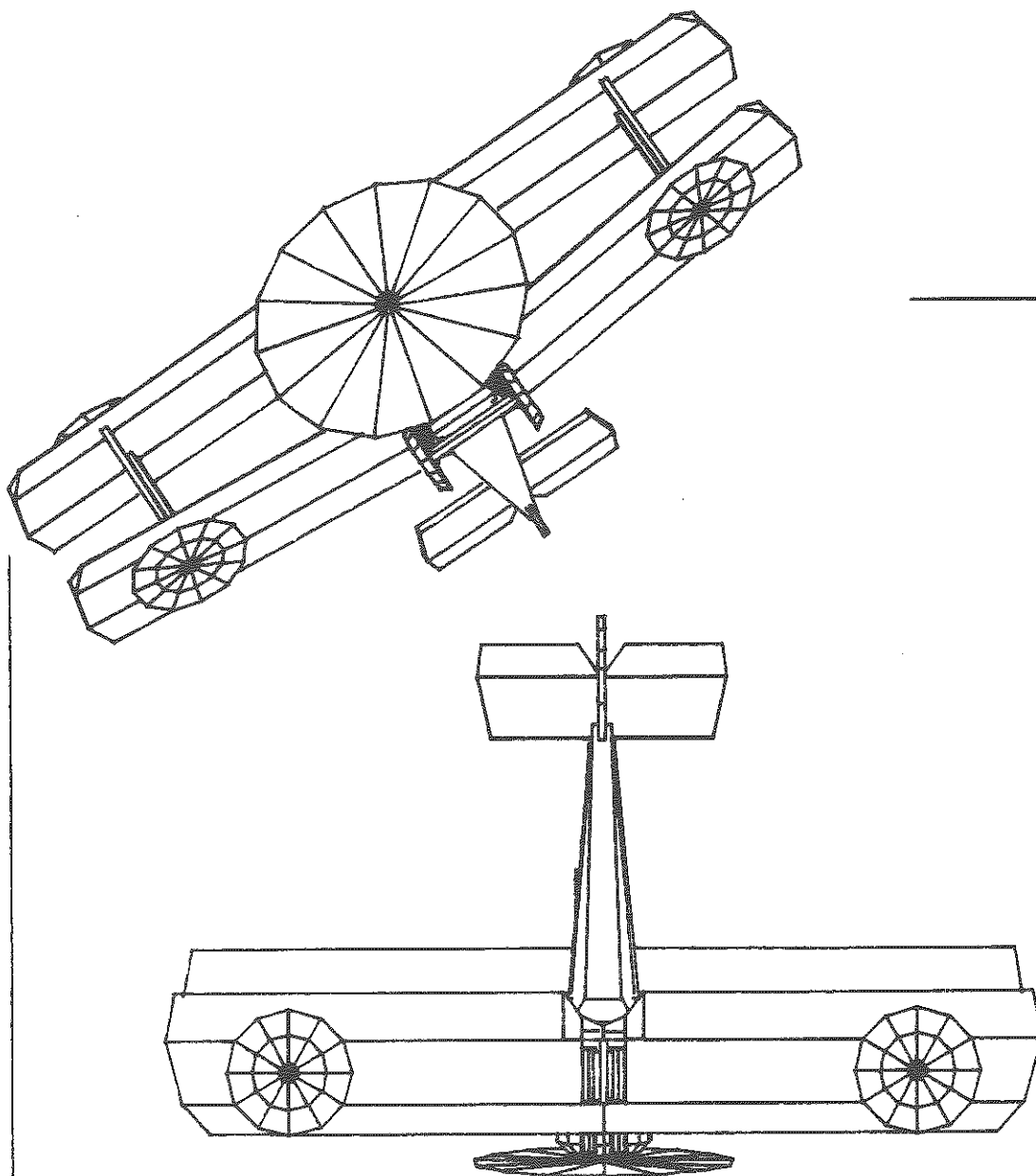
VAX (*VMS or UNIX*)
Interactive terminals, self-service printers
 TH Room LC-8, ED second floor, WWH Room 313, 14 WPL; Bobst B-level *
Output folders (main printer) WWH Room 312, TH LC-14

IBM Interactive terminals
 WYLBUR TH Room LC-8, ED second floor, WWH Room 313, 14 WPL; Bobst B-level *
Card reader TH Room LC-14
Keypunches TH Room LC-14 Output folders TH Room LC-14

* The ACF terminals on the B-level of Bobst Library are available during all library and study-hall hours. There are no printers at Bobst. There is also a faculty-only facility in Room 313 WWH.

Key: *WWH* - Warren Weaver Hall, *14 WPL* - 14 Washington Place, *TH* - Tisch Hall,
ED - Education Building, *BOB* - Bobst Library.

† Doors open at 8 a.m., and sites are ready for use by 8:30.



The drawings on this page illustrate some of the three-dimensional capabilities of the graphics system Movie.BYU. They depict an early twentieth-century British airplane in two rotations. They were produced from a multi-part geometry description provided as a sample by the Brigham Young University Civil Engineering Department. They were rendered by Pauline Ores, who used a VAX/VMS system and the Hewlett-Packard 7475 plotter. (See Graphics at NYU, page 3, for more about Movie.BYU. Ms. Ores will be speaking on Movie.BYU on March 4 at 2:30 p.m. in Room 1302 Warren Weaver Hall.)

Brochure Gives Overview of ACF

This fall, the ACF came out with its first brochure. To date, approximately 3000 brochures have been distributed, primarily to faculty and graduate students. The brochure presents an overview of the services and facilities offered by the ACF. An insert can be mailed in for additional information on particular topics.

Copies of the brochure are available at the information counter at Bobst Library, and packets have been sent to departments for distribution to graduate students. If your department has not received any brochures, and you would like some, please let us know by mailing in one of the coupons on this page. Δ

**If you are just starting out on
an ACF computer, or
planning a research project,**

Let The ACF Help You Select The Right Computing Resources for Your Project

This fall marked the beginning of Information-About-The-ACF, a modest service which provides introductory kinds of information about our computing facilities. An important purpose of the service is to help current and prospective users of ACF computers find the ACF staff member who can best help them.

In fact, the ACF urges faculty and graduate students to seek help in selecting the computing resources that are best suited to a research project before they begin. If you are just starting out and need help in selecting a computer, or are considering a kind of computer application that you have not tried before, contact Information-About-The-ACF.

Queries can be made via mail or phone. Mail inquiries should be made to Information-About-The-ACF, Academic Computing Facility, Room 306, 251 Mercer Street, New York, N.Y. 10012. Telephone inquiries (598-3513) reach an answering machine, but generally replies are made within the same day. Δ

Would You Like To Be Placed On the Mailing List for This Newsletter?

If you would like to receive future issues of the *ACF Newsletter*, please fill out this form and send it to *ACF Newsletter*, c/o The ACF Documentation Office, 251 Mercer Street, Room 306, New York, N.Y. 10012. (No need to send us this form if you have already submitted one from an issue of the *ACF Newsletter* or the *Microcomputer Newsletter*.)

Name: _____

Please check one:

Address (a University address, if possible, please):

_____ Faculty _____ Student

_____ Administration _____ Staff

Check here if you would like to receive a copy of our brochure (*The Academic Computing Facility: An Introduction for Faculty and Students*). _____

(ACF/NYU Newsletter, Feb. 1986)

To Get On the Mailing List for the ACF's Microcomputer Newsletter...

If you would like to receive future issues of the ACF's *Microcomputer Newsletter*, please fill out this form and send it to *ACF Microcomputer Newsletter*, c/o The ACF Documentation Office, 251 Mercer Street, Room 306, New York, N.Y. 10012. (No need to send us this form if you have already submitted one from an issue of the *ACF Newsletter* or the *Microcomputer Newsletter*.)

Name: _____

Please check one:

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(ACF/NYU Newsletter, Feb. 1986)

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Courant Institute of Mathematical Sciences
251 Mercer Street, New York, N. Y. 10012

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The
Academic Computing Facility
New York University